

Futures Unlimited
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Background

Futures Unlimited is an outpatient physical therapy clinic in Columbus, MS that utilizes a unique physical therapy model, “chronologically controlled developmental therapy.” Founder Ed Snapp, P.T., has developed a treatment plan emphasizing sensory integration in a controlled environment designed to relate pattern and behavior to prenatal and neonatal development.

Northwest (NW) Futures Unlimited opened in Spokane, WA in 2001. The Futures Unlimited facilities treat patients with:

- Traumatic brain injury
- Spinal cord injury
- Cerebral palsy
- Post polio syndrome
- Fibromyalgia
- Autism
- Scoliosis
- Attention deficit disorder (ADD)
- Attention deficit hyperactivity disorder (ADHD), and
- Chronic fatigue syndrome.¹

NW Futures Unlimited has come to the attention of the Office of the Medical Director because the coordinator of rehabilitation services at the facility has requested treatment for seven injured workers.

Treatment

Following a traumatic experience, it is hypothesized that the central nervous system (CNS) will regress to an earlier pattern of prenatal function and posture, allowing it to retrieve data from genetic information. At this point, the nervous system attempts to correct the problems systematically and chronologically at the earliest level of function available.

The treatment program at Futures Unlimited focuses on “stimulating only the lower levels of function in the chronological order that they were originally learned and in an environment similar to the original environment remembered by the genetic code.”² Hydrotherapy, massage, sensory integration, and patterning are the main modalities used in the treatment program at Futures Unlimited.

A patient at Futures Unlimited is at the clinic for 6 to 7 hours per day for 10 days over a two-week period. The treatment stimulates the nervous system through control of sensory input, including all environmental factors that can be manipulated. The factors are closely monitored to eliminate distracting stimuli and to specifically enhance

relaxation, certain movements, reflexes and coordination patterns. The treatment method is based on the idea that increased sensory function leads to the development of automatic motor patterns and progress in developmental and functional activities.³

A post polio syndrome Futures Unlimited patient describes that in the rest period between morning and afternoon physical therapy sessions, “you are curled up in a cut-in-half inner tube that is hung from the ceiling and rests on a bean bag. You are more or less in a fetal position, and they play fetal sounds. It is unusual, but very relaxing.”⁴ The same patient also describes how all procedures are done under very dim blue or green lights with no talking.

The end results from Futures Unlimited vary, but the Treatment Protocol states, “In areas where muscle function is present, spasticity is reduced without medication or electrical stimulation. Range of motion is improved without stretching, splinting, or casting, and muscle tone and muscle bulk is frequently increased without resistive exercise.”⁵

Discussion

There have been no published, peer-reviewed clinical trials on the effectiveness of the Futures Unlimited program. In order to compare Futures Unlimited to other physical therapy programs, it is necessary to break down and analyze the individual components and similar treatment methods. The main modalities that comprise the Futures Unlimited program (patterning, sensory integration, hydrotherapy, and massage) are discussed in this section.

Patterning

At Futures Unlimited, patterning is performed in a specific sequence to encourage the proper development of coordinated movement. The patient is placed on an oil-slick surface and passively undergoes early movement patterns, such as hip flexion, adduction, and outward hip rotation. A sequence of basic movement pattern then progresses from prone mobility and quadruped mobility to complex intentional coordination. Prone and quadruped mobility are the basis for development of muscle strength and endurance.⁶

Snapp developed the Futures Unlimited treatment model in the 1970s by adding sensory information from prenatal development to the Doman-Delacato technique of psychomotor patterning.

Developed in the 1960s by Doman and Delacato, patterning was designed to treat mental retardation; it is intended to stimulate the proper development of phylogenetic stages, each of which must be mastered before progression to the next stage. The method focuses on primitive reflexive movements and postural reaction in both the prone and supine positions. Chronologically controlled developmental therapy thus focuses on patterning to stimulate only the lower levels of function in the chronological order and similar environment that they were originally learned.⁷

The Doman-Delacato patterning treatment involves a patient moving repeatedly in the manner of the current stage. The active or passive motion is repeated for five minutes,

four times per day to impose the appropriate “pattern” onto the CNS. The full treatment program combines the exercises with sensory stimulation, breathing exercises designed to increase oxygen flow to the brain, and a program of restriction and facilitation designed to promote hemispheric dominance.

The patterning theory of brain functioning is based on neurologic organization, which the American Academy of Pediatrics calls “an oversimplified concept of hemispheric dominance and the relationship of individual sequential phylogenetic development.”⁸ The theory states that failure to properly complete any stage of neurological organization adversely affects all subsequent stages; therefore the best way to treat a damaged nervous system is by regressing to primitive modes and practicing them. Several careful reviews have concluded that this theory is unsupported, contradicted, or without merit based on scientific study.

Results published on patterning have proved inconclusive. In 1978, a well-controlled investigation compared 3 groups of severely mentally disabled and institutionalized children.⁹ One group received patterning, a second was treated by motivational techniques, and a third received routine care. Using a wide variety of behavioral measures, no significant differences were found among the three groups. Investigators concluded that patterning could not be considered superior to any other treatment method for institutionalized mentally disabled children.

Other less well-designed studies investigated the effect of patterning therapy on children with a range of disabilities. A study in New Zealand showed a significant, but short-term, effect on developmental progress in patterned children compared to children receiving traditional programs.¹⁰ A review of the use of patterning to arouse children in a coma and for sensory stimulation in brain-injured children and adults also gave no scientific evidence or theoretical rationale for its use.¹¹

In 1967, the American Academy of Pediatrics and the American Academy of Neurology issued a joint statement discarding the Doman-Delacato treatment method as a false concept with no therapeutic role.¹² The American Academy of Pediatrics updated their policy statement on patterning in 1999, maintaining:

Treatment programs that offer patterning remain unfounded; ie, they are based on oversimplified theories, are claimed to be effective for a variety of unrelated conditions, and are supported by case reports or anecdotal data and not by carefully designed research studies. In most cases, improvement observed in cases undergoing this method of treatment can be accounted for based on growth and development, the intensive practice of certain isolated skills, or the nonspecific effects of intensive stimulation.¹³

Sensory Integration

At Futures Unlimited, sensory factors, environment and movement activities are provided in a closely controlled sequence. This sequence is used to re-establish a background of reaction, body awareness, and progressive control in an order similar to that which could be expected in prenatal development.¹⁴

Futures Unlimited does not utilize traditional sensory integration therapy, which takes place on a one-on-one basis in a room with equipment for varying movement and sensory experiences. In addition to controlling sensory input, sensory integration at Futures Unlimited focuses more on body movement and the proprioceptive system, including motor planning. The proprioceptive system deals with body position and provides an inner sense of muscles, tendons, joints, and pressure.¹⁵ Sensory stimulation includes:

- Controlled lighting
- Specific temperature
- Noise control
- Range of motion
- Hydrotherapy
- Fetal rest
- Correlating movements
- Pressure points
- Linear contractile stimulation, and
- Other soothing and relaxing procedures.

Sensory integration, described by Dr. A. Jean Ayres in the 1950s, is the organization of sensory information for use. It is the receiving, registering, modulating, organizing, and interpreting of information from the senses. The process of sensory integration develops naturally and helps a child to learn new skills and explore the environment; however, if development fails to progress correctly, a child can have difficulties in learning, behavior, movement, and attention.¹⁶

Sensory integration therapy provides exposure to sensory input in a controlled environment. Typically used to treat children with developmental disorders and learning disabilities, sensory integration therapy may also benefit brain-injured adults since brain trauma can have serious effects on sensory functioning.

Futures Unlimited may also draw upon neurodevelopmental treatment (NDT), an approach similar to sensory integration therapy. NDT encourages correct positioning to develop through normal developmental patterns in functional situations. It focuses on sensorimotor components of muscle tone, reflexes, and abnormal movement patterns, postural control, sensation, perception, and memory—all components potentially impaired by CNS damage. However, the approach of promoting the strict following of normal developmental sequence was flawed. Children were unable to spontaneously translate the therapeutic experience into voluntary functional movements.¹⁷

Hydrotherapy

At Futures Unlimited, hydrotherapy consists of being submerged, supported in a supine position, in a tank of body temperature water. The support is from a suspension sling that allows the water to move over the body. The body relaxes and reacts to the stimulation of the water movement. Dr. Laurance Johnston tried hydrotherapy at Futures Unlimited and described it on his website:

With the support of virtually imperceptible harnesses and slings, I became immersed, floating in a tank with only my face out of body-temperature water. With the exception of a gentle flow of water that would periodically change directions, my

body was deprived of virtually all sensations...these conditions are meant to mimic the womb's environment.¹⁸

Typically, hydrotherapy refers to a variety of therapeutic water treatments, including hot tubs, Hubbard tanks, flotation tanks, or aquatic exercise. In the U.S., hydrotherapy generally indicates a hot tub or an aquatic exercise program in a rehabilitation setting.

Massage

The massage* portion at Futures Unlimited consists of light-touch massage, deep pressure stimulation, and patterning movement.¹⁹

The most popular theory about pain reduction from massage therapy is the gate control theory, which provides only an immediate effect. The theory suggests that pressure and cold stimuli travel along faster nervous system pathways than pain. Massage therapy performed with sufficient pressure would create a stimulus that interferes with the transmission of the pain stimuli to the brain, effectively "closing the gate" to the reception of pain before it can be processed.²⁰

Other Insurers

Due to the fact that Futures Unlimited is an outpatient physical therapy clinic, most insurers do not need a specific policy to cover it. A 2002 NW Futures Unlimited update from the Polio Experience Network reported that most major insurance companies are paying a large percentage of treatment costs.²¹ The same update also reported that Group Health was considering payment acceptance for their patients and that the Department of Social and Health Services was reviewing the program to use in conjunction with their vocational rehabilitation services.

Aetna considers aquatic therapy (including hydrotherapy) medically necessary for musculoskeletal conditions. Their Clinical Policy Bulletin states, "Aquatic therapy has been shown to provide relief of symptoms from a variety of arthritides, traumatic injuries, and other musculoskeletal conditions."²² However, they note that this policy only covers physical therapy modalities administered in a pool, which require direct, one-on-one patient contact. Under Aetna, massage therapy is considered medically necessary for the treatment of discomfort/pain for conditions that have the potential to benefit from physical therapy. However, massage therapy is not considered medically necessary for prolonged periods and should be limited to the initial or acute phase of an injury or illness.²³

Costs

The total cost of Futures Unlimited is \$4195.00 for the two-week period, \$70.00 per hour, up to \$490.00 per day.²⁴ LNI has a daily maximum allowable fee of \$104.12 for physical and occupational therapy services.

* The American Massage Therapy Association defines *massage* as "manual soft tissue manipulation [that] includes holding, causing movement, and/or applying pressure to the body." Massage is a long established and effective therapy used for the relief of pain, swelling, muscle spasm, depression, anxiety, and restricted movement.²⁸

Billing Codes

Physical therapy is billed under CPT codes 97001 to 97799. Futures Unlimited bills each therapy modality as it is used. The codes are as follows:

<i>CPT Code</i>	<i>Description</i>
97001	Physical therapy evaluation
97110	Therapeutic procedure, one or more areas, each 15 minutes; therapeutic exercises to develop strength and endurance, range of motion
97112	Neuromuscular reeducation of movement, balance, coordination, kinesthetic sense, posture, and/or proprioception for sitting and/or standing activities
97113	Aquatic therapy with therapeutic exercises
97124	Massage, including effleurage, petrissage and/or tapotement (stroking, compression, percussion)
97530	Therapeutic activities, direct (one-on-one) patient contact by the provider (use of dynamic activities to improve functional performance, each 15 minutes.

These codes require the physician or therapist to have direct one-on-one patient contact.

Conclusion

Futures Unlimited centers around ideas like patterning and sensory integration, both of which have been debated at great length in the therapy community. The effectiveness of the complementary and alternative therapies in Futures Unlimited is difficult to establish due to a lack of quality evidence. Most services are provided without good evidence of benefit. Therefore, many of the therapy techniques that are in use at Futures Unlimited are considered controversial.

References

- ¹ Futures Unlimited, Inc. Website content. Last accessed June 18, 2004. Available from <http://www.futuresunlimited.com>.
- ² Futures Unlimited, Inc. "A New Perspective." Provided by Karen Stanek for NW Futures Unlimited.
- ³ Snapp, JE. "Client Expectations, Reputable and Innovative, Our Expectations." Provided by Karen Stanek for NW Futures Unlimited.
- ⁴ Young, Elinor. "Some Questions and Answers." The Polio Experience Network. Last accessed June 16, 2004. Available from <http://www.polionet.org/futures.htm>
- ⁵ Futures Unlimited, Inc. "Treatment protocol." Provided by Karen Stanek for NW Futures Unlimited.
- ⁶ Snapp, Ed. "Spinal Cord Injuries." Provided by Karen Stanek for NW Futures Unlimited. Also available under "Spinal Cord Injuries" at <http://www.futuresunlimited.com>.
- ⁷ Snapp, JE.
- ⁸ American Academy of Pediatrics (AAP). "The Treatment of Neurologically Impaired Children Using Patterning. Policy Statement, Committee on Children with Disabilities." *Pediatrics*. November 1999; 104(5): 1149-1151.
- ⁹ Sparrow S, Zigler E. "Evaluation of a patterning treatment for retarded children." *Pediatrics*. 1978; 37:137-150.
- ¹⁰ Bridgman GD, et al. "The evaluation of sensorimotor-patterning and the persistence of belief." *Br J Ment Subnormality*. 1986; 32:3-19.
- ¹¹ Cummins RA. "Coma arousal and sensory stimulation: an evaluation of the Doman-Delacato approach." *Aust Psychol*. 1992; 27:71-77.
- ¹² American Academy of Neurology and American Academy of Pediatrics. Joint Executive Board Statement. "The Doman-Delacato treatment of neurologically handicapped children." *Neurology*. 1967; 17:367.
- ¹³ AAP.
- ¹⁴ Snapp, Ed. "Traumatic Brain Injury." Provided by Karen Stanek for NW Futures Unlimited. Also available under "Traumatic Brain Injury" at <http://www.futuresunlimited.com>.
- ¹⁵ Randolph S, Heiniger M. *Kids Learn from the Inside Out: How to Enhance the Human Matrix*. "Chapter 5: The AHA! of Kinesthesia." Boise, Idaho: Legendary Publishing Company. 1994.
- ¹⁶ DiMatties, M.E., Sammons, J.H. "ERIC EC Digest #E643, Understanding Sensory Integration." *Fact Sheet*. The ERIC Clearinghouse on Disabilities and Gifted Education (ERIC EC), The Council for Exceptional Children. May 2003. Last accessed June 23, 2004. Available from <http://www.exploralearning.com/factsheets/DSIfact.pdf>.
- ¹⁷ Butler C, Darrah J. "AACPDm Evidence Report: Effects of Neurodevelopmental Treatment (NDT) for Cerebral Palsy." *Evidence Report*. American Academy for Cerebral Palsy and Developmental Medicine. Originally published July 2001, updated March 2002. Last accessed June 23, 2004. Available from <http://www.aacpdm.org>, under "Outcome Studies." Also published in *Developmental Medicine and Child Neurology*. 2001; 43:778-790.
- ¹⁸ Johnston, Laurance. "Chronologically Controlled Developmental Therapy for Physical Disability." *Healing Therapies*. Last accessed June 15, 2004. Available from <http://www.healingtherapies.info/Snapp.htm>.
- ¹⁹ Personal communication with Karen Stanek. June 24, 2004.
- ²⁰ Moyer C, Rounds J, Hannum J. "A Meta-Analysis of Massage Therapy Research." *Psychological Bulletin*. 2004, 130(1):3-18.
- ²¹ "Update from Northwest Futures Unlimited." Polio Experience Network. Autumn 2002. Last accessed June 18, 2004. Available from <http://www.polionet.org/futures.htm>.
- ²² Aetna. "Number 0174; Pool Therapy, Aquatic Therapy or Hydrotherapy." *Clinical Policy Bulletin*. April 20, 2004. Last accessed June 23, 2004. Available from <http://www.aetna.com/cpb/data/PrtCPBA0174.html>.
- ²³ Aetna. "Number 0325; Physical Therapy Services." *Clinical Policy Bulletin*. June 22, 2004. Last accessed June 24, 2004. Available from <http://www.aetna.com/cpb/data/CPBA0325.html>.
- ²⁴ Stanek, Karen. Letter to Grace Wang. June 5, 2004.